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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/679,984 | 10/06/2003 | Akihiro Yamane | 03702/0200111-US0 | 4772 |

7278 7590 10/20/2005

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| EXAMINER | |
|---|---|
| ELDRED, JOHN W | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3644 | |

DATE MAILED: 10/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/679,984 | YAMANE, AKIHIRO | |
| | Examiner | Art Unit | |
| | J. Woodrow Eldred | 3644 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *25 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-5 and 10* is/are allowed.

6)☒ Claim(s) *6-9,11,12,16 and 17* is/are rejected.

7)☒ Claim(s) *13-15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 6-9, 11, 12, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall, Jr. et al (3,096,046) in view of either one of Yamakawa et al (6,198,991) or Silder, Jr. et al (6,527,225).

Kendall, Jr. et al disclose take-off and landing methods for an unmanned helicopter. For take-off, these comprise manually increasing the collective pitch, which will inherently increase the climb rate. See column 41, lines 12-14. While Kendall, Jr. et al fail to use the words "at a constant rate", it is considered obvious for one of ordinary skill in the art to smoothly, i.e. at a constant rate, increase the climb rate at least to a certain point at which it is clear the helicopter will leave the ground safely. No unexpected or patentable result appears to be provided by specifying a constant rate, and it would be counter-intuitive for a pilot to not increase the climb smoothly. Likewise, landing involves gradually reducing the descent rate until a hover is reached, then further reducing pitch until the helicopter gradually settles to the ground. See column 42, lines 1-14. It is normal caution to descend more slowing when close to the ground, so no unexpected or patentable results appear from more slowly descending to land. Also, the "stepwise" decreasing of the descent rate in the first descending step appears to be met by the normal action of not being able to reduce the descent in a perfectly smooth manner. In claims 6 and 11, the broad step of "performing attitude control" is clearly met since the helicopter is controlled and not allowed to crash. In regard to claim 11, note that no "fed back control" is used. In claims 7 and 9, the position controls mentioned are "suppressed" since these steps are not carried out. Kendall, Jr. et al also fail to disclose the takeoff and landing methods being autonomously controlled. Both Yamakawa et al and Silder, Jr. et al teach that it is well known to have autonomous control for a helicopter and to have

automatic landing or takeoffs. See especially column 2, lines 54-61 of Yamakawa et al or column 1,line 62 – column 2, line 33. Motivation to combine is the improved performance available from not requiring the active participation of a human being in the process of flight control, including takeoff and landing. To employ the same landing or takeoff procedure discussed above, but implemented with the autonomous system of either Yamakawa et al or Slider, Jr. et al is considered to have been obvious to one having ordinary skill in the art.

3. Claims 1-5 and 10 are allowed.

4. Claims 13-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Woodrow Eldred whose telephone number is 571-272-6901. The examiner can normally be reached on Monday to Thursday, from 8:00 a.m. to 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teri Luu can be reached on 571-272-7045. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

J. Woodrow Eldred
Primary Examiner
Art Unit 3644